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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,682	12/12/2005	Yanzhong Dai	CN02 0035 US1	8975
65913	7590	01/24/2011	EXAMINER	
NXP, B.V.			HUANG, DAVID S	
NXP INTELLECTUAL PROPERTY & LICENSING				
M/S41-SJ			ART UNIT	PAPER NUMBER
1109 MCKAY DRIVE				2611
SAN JOSE, CA 95131				
NOTIFICATION DATE		DELIVERY MODE		
01/24/2011		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/540,682	DAI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	DAVID HUANG	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 20 December 2010.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 3-6,8,10,11,13-21 and 23-27 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 3-5,8,10,11,13-18 and 23-27 is/are allowed.  
 6) Claim(s) 19-21 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date. _____ .	6) <input type="checkbox"/> Other: _____ .

## **DETAILED ACTION**

1. The indicated allowability of claims 19-21 is withdrawn in view of the newly discovered reference(s) to Sugar et al. (US 6,785,520) and McAlpine (US 6,011,798). Rejections based on the newly cited reference(s) follow.

### **Response to Arguments**

2. Applicant's arguments, with respect to Double Patenting have been fully considered and are persuasive. The obviousness type double patenting rejection of 10/18/2010 has been withdrawn.

### **Claim Rejections - 35 USC § 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugar et al. (US 6,785,520, hereinafter "Sugar") and Petrus (US 6,177,906).

Regarding claim 19, Sugar discloses a device for processing multi-channel signals received by smart antennas, comprising:

a plurality of buffers, each used for respectively caching inputted multi-channel signals (buffers 640, Fig. 9, col. 7, lines 59-61);

a plurality of weight adjusting modules, each used for weighting data outputted from each of the plurality of buffers according to a respectively received weight (multipliers 660, Fig. 9, col. 7, lines 65-67); and

a combiner, for combining the weighted data outputted from each of the plurality of weight adjusting modules so as to combine said input multi-channel signal into single-channel signals (adder 670, Fig. 9, col. 8, lines 1-2).

However, Sugar fails to expressly disclose a controller, for receiving said plurality groups of signals, and providing said weight to each of the plurality of weight adjusting modules according to the control information received one-off while synchronizing said multi-channel signals inputted into the device.

Petrus discloses a decision-directed smart antenna combining system (Fig. 6, signal copy 607, weight calculate and demod 615, and weight initialization module 621) in which the weight vector is initialized as  $[1 \ 0 \ 0 \ \dots \ 0]'$ , such that the initial operation is to calculate an actual weight vector according to equations 8 and 9 (col. 12, lines 1-40). The initialized weight vector is only sent once for initialization, at the outset of the method, and is thus received "one-off". Furthermore, time align block 609 corrects timing offsets and produces baud-aligned samples (synchronizing). The method of Petrus uses multiple iterations to achieve the best weights (col. 11, lines 50-64).

Therefore, it would have been obvious to one of ordinary skill in the art to provide the system of Sugar with the iterative weight determination teaching of Petrus since this improves performance by providing the best weights for use in antenna combining.

5. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugar and Petrus as applied to claim 19 above, and further in view of McAlpine (US 6,011,798).

Regarding claim 20 and 21, Sugar and Petrus disclose everything applied to claim 19, but fail to expressly disclose said buffers are ring-FIFOs, wherein a size of each ring-FIFO is one time slot.

However, circular buffers or re-circulating FIFO wherein each location in the queue represents a fixed-size time slot are well known in the art, as evidenced by McAlpine (col. 2, lines 3-6).

Therefore it would have been obvious to one of ordinary skill in the art to implement the buffer of Sugar and Petrus with the circulating FIFO of McAlpine, since they are well known in the art and would have been identified by one of ordinary skill in the art concerned with buffer implementations.

### **Allowable Subject Matter**

6. Claims 3-5, 8, 10, 11, 13-18, and 23-27 are allowed.

### **Conclusion**

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sim (US 7,116,702)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID HUANG whose telephone number is (571)270-1798. The examiner can normally be reached on Monday - Friday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSH/dsh  
1/4/11  
/David Huang/  
Examiner, Art Unit 2611  
/Shuwang Liu/  
Supervisory Patent Examiner, Art Unit 2611